

# **Easy to Carry Hands-Free Kit Containing Earpiece Inside The Carrying Case**

This invention relates to an easy to carry hands-free talking kit for a  
5 cellular phone, containing earpiece set inside of the cellular phone carrying  
case.

## **1. FIELD OF THE INVENTION**

10 A hands-free talking kit for a cellular phone consists of, including but not limited to, a cellular phone carrying case, an adaptor, and an earpiece set connected to an on/off switch with thin copper wires coated with flexible plastic, which are installed inside of the carrying case and connected to a cellular phone via an earphone jack.

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## **2. DESCRIPTION OF THE PRIOR ARTS**

U. S. Patent No. 5,850,439 to Yang demonstrates a portable hands-free telephone converter that allows a user to speak on the telephone without  
20 using the hands to hold a handset. The set is exposed to out side of a telephone, not installed inside a carrying holder.

U. S. Patent No. 6,308,074 Chandra, et al. discloses a tether less handset telephone with an earpiece connection port. The handset is small in size and has an internal antenna. Thus, the handset can easily be placed within the user's pocket. A belt carrier for use with the handset holds the handset upside-down with the connection port easily accessible. The handset is arranged so that it can be cradled within a base unit. Earpiece is not wrapped inside the case.

U. S. Patent No. 6,320,959 to Crouch, et al. illustrates a hearing aid telephone interconnect system to permit hearing impaired persons to use conventional telephone instruments employing a T-couple adapted to hook over the ear of a user of a conventional behind-the-ear, in-the-ear, and eyeglass hearing aid of the type employing an input T-coil.

U. S. Patent No. 6,108,566 to Albanese, et al. provides a telephone handset for permitting hands-free operation of in a vehicle. The device, having a base pivotally attached to the vehicle above the door opening on the driver's side and stored above the door opening when not in use.

U. S. patent No. 5,667,948 to Pierre and 3,667,569 to Mackey illustrate a hands-free cellular phone wearing on user's neck. U. S. Patents 5,407,113; 5,528,689; 4,907,266; 4,754,484 and 4,090,042 illustrate hands-free set wearing on user's head.

All of the prior art illustrate hearing set installed out side of carrying holder.

## SUMMARY OF THE INVENTION

Therefore, it is the purpose of this invention to provide an easy to carry hands-free kit, containing earpiece set inside a cellular phone carrying case.

5 The hands-free kit of this invention consists of including but not limited to a plastic carrying case, an adaptor, an earpiece set connected to an on/off switch by thin copper wires coated with flexible plastic. The earpiece set of this invention is small enough to be installed inside the cellular phone carrying case of this invention. The earpiece set consists of, including but not limited to,  
10 a microphone, an earpiece, electric wire and a mechanical spring winder. The earpiece set of this invention is coiled inside the cellular phone carrying case of this invention by a mechanical spring winder installed inside the case. One end of the earpiece set is connected to the on/off switch, which is connected to the cellular phone via the earphone jack. The other end of the earpiece set is exposed out of the spring winder. The earpiece is holding on the out side of earpiece hole on the back of the case sustaining a strain of the wire connected to spring winder. The earpiece and speaker are stretched out of the carrying case when the user uses the hands-free kit. When the user does not pull out the earpiece, the power supplied only to the cellular phone. The kit is convenient  
15 to carry all set in one package. The kit of this invention minimizes losing  
20 earpiece set.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of the holding case without cellular phone.

5 Fig. 2 is a side view of the carrying holder.

Fig. 3 is a perspective view of the assembly of the spring winder.

Fig. 4 is a rear view of the carrying holder.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 is the front view of the cellular phone carrying case. Power is supplied to the phone through the adapter jack port (11). Voice signals are exchanged through the earpiece jack (12). The earpiece jack (12) is connected by a copper wire(16) to the ring connector (13). Dotted drawings (14) and (15) are microphone and earpiece, respectively.

20 Fig. 2 is the side view of the carrying case. The barrier (21) separates the cellular phone and hands-free kit. Earpiece (22) and microphone (23) are connected to the spring winder (24).

Fig. 3 is a perspective view of the assembly of the spring winder. Top element (31) is illustrated as (13) in Fig. 1. It consists of three copper rings separated by plastic and connected to cellular phone by wire (32). Each ring contacts with each copper knobs (33). The knobs are plated on plastic disc 5 (34) and connected to the wire (35). The wire is wound on the winder (36). The winder is on the spring and gear box (37). In the gearbox, a cramp iron (38) is located on a rod to stop the gear (40) connected to the spring (41). The other end of the spring is fixed the other rod (39) in the gear box. When a user 10 pulls out the earpiece (22) of Fig. 1, the wire (35) turns the center rod (42). Then the spring, connected to the rods, turns to the anti-clock wise and renders tension to the wire (35).

Fig. 4 is the rear view of the carrying case. As a user stretches out the earpiece, the radius of circle of wire bundle is reduced. Then the switch connector (43), supported on the surface of wire bundle, moves to the inner 15 circle wise drawn by the coil spring (44) to turn on the switch (45). The cellular phone and earpiece are connected while the cellular phone is hanged on a user's pocket or waistband. The earpiece turns off when the user pulls out a little more of the ear piece and let the spring (41) wind the wire (35) and 20 push the connector (43) clock wise and so the switch (45) are disconnected with the cellular phone. Mean while the cellular phone itself is not turned off.